

What is claimed is:

1. A polymeric composition comprising: a film forming binder, an elastomeric emulsion, a water repellant and a plasticizer.

2. The polymeric composition of claim 1, wherein the film forming binder is selected from the group consisting of polyester, polyolefin and polyamide or blends thereof.

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3. The polymeric composition of claim 1, wherein the film forming binder is selected from the group consisting of polyacrylates, polyacrylic acid, polymethacrylates, polyvinyl acetates, co-polymer blends of vinyl acetate and ethylene/acrylic acid co-polymers, ethylene-acrylic acid copolymers, polyolefins, and natural and synthetic waxes.

4. The polymeric composition of claim 1, wherein the natural and synthetic waxes are selected from the group consisting of carnauba wax, mineral waxes, montan wax, derivatives of montan wax, petroleum waxes, polyethylene and oxidized polyethylene waxes.

5. The polymeric composition of claim 1, which comprises: an acrylic dispersion, an elastomeric emulsion, a water repellant and a plasticizer.

6. The polymeric composition of claim 5, wherein said acrylic dispersion is an ethylene acrylic acid dispersion, said water repellant is polyurethane dispersion and said plasticizer is a polyethylene glycol.

7. The polymeric composition of claim 6, wherein said ethylene acrylic acid dispersion melts in the range of from about 65°C to about 180°C.

5 8. The polymeric composition of claim 1, wherein said elastomeric emulsion has a Tg in the range of from -50°C to 25°C.

10 9. The polymeric composition of claim 6, wherein said polyurethane dispersion has a Tg in the range of from -50°C to 25°C.

15 10. The polymeric composition of claim 6, wherein said ethylene acrylic acid dispersion is present in an amount of from 46 to 90 parts by weight; said elastomeric emulsion is present in an amount of from 1 to 45 parts by weight; said polyurethane dispersion is present in an amount of from 1 to 7 parts by weight; and said polyethylene glycol is present in an amount of from 1 to 8 parts by weight.

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11. The polymeric composition of claim 6, wherein said ethylene acrylic acid dispersion is present in an amount of 86 parts by weight; said elastomeric emulsion is present in an amount of 5 parts by weight; said polyurethane dispersion is present in an amount of 4 parts by weight; and said polyethylene glycol is present in an amount of 4 parts by weight.

30 12. The polymeric composition of claim 6, which further comprises a polyethylene glycol mono ((tetramethyl butyl) phenol) ester compound.

13. The polymeric composition of claim 6, wherein the elastomeric emulsion is selected from the group consisting of polybutadiene, polybutadiene derivatives, polyurethane, polyurethane derivatives, styrene-butadiene, styrene-butadiene-styrene, acrylonitrile-butadiene, acrylonitrile-butadiene-styrene, acrylonitrile-ethylene-styrene, polyacrylates, polychloroprene, ethylene-vinyl acetate and poly (vinyl chloride).

10 14. A coated transfer sheet comprising:  
a substrate having a first and second surface; and  
at least one release layer overlaying said first  
surface, said release layer comprising a film-forming  
binder, an elastomeric emulsion, a water repellant and a  
15 plasticizer.

15. The coated transfer sheet of claim 14, wherein said film-forming binder is an acrylic dispersion.

20 16. The coated transfer sheet of claim 14, wherein said film-forming binder is an acrylic dispersion, said water repellant is polyurethane dispersion and said plasticizer is a polyethylene glycol.

25 17. The coated transfer sheet of claim 16, wherein said acrylic dispersion is an ethylene acrylic acid dispersion.

30 18. The coated transfer sheet of claim 14, wherein said film-forming binder which melts in the range of from about 65°C to about 180°C;

said elastomeric emulsion which has a Tg in the range of from -50°C to 25°C;

and said polyurethane dispersion which has a Tg in the range of from -50°C to 25°C.

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19. The coated transfer sheet of claim 14, which further comprises a polyethylene glycol.

20. The coated transfer sheet of claim 18, wherein  
10 said film-forming binder is present in an amount of from about 46 to about 90 percent by weight;

said elastomeric emulsion is present in an amount of from 1 to about 45 percent by weight;

said polyurethane dispersion is present in an about of  
15 from 1 to about 8 percent;

and said release layer further comprises a polyethylene glycol present in an amount of from 1 to about 8 percent by weight.

20 21. The coated transfer sheet of claim 14, which further comprises at least one image receiving layer overlaying said at least one release layer, said image receiving layer comprising an ethylene acrylic acid co-polymer dispersion.

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22. The coated transfer sheet of claim 20 wherein

said film-forming binder is present in an amount of 86 percent by weight;

said elastomeric emulsion is present in an amount of 5  
30 percent by weight;

said polyurethane dispersion is present in an amount of 4 percent;

and said polyethylene glycol is present in an amount of 4 percent by weight.

23. The transfer sheet of claim 19, wherein said  
5 polyethylene glycol comprises a polyethylene glycol mono ((tetramethyl butyl) phenol) ester compound.

24. The coated transfer sheet of claim 14, wherein said elastomeric emulsion is selected from the group consisting  
10 of polybutadiene, polybutadiene derivatives, polyurethane, polyurethane derivatives, styrene-butadiene, styrene-butadiene-styrene, acrylonitrile-butadiene, acrylonitrile-butadiene-styrene, acrylonitrile-ethylene-styrene, polyacrylates, polychloroprene, ethylene-vinyl acetate and  
15 poly (vinyl chloride).

25. The coated transfer sheet of claim 14, which further comprises a barrier in-between said first surface of the substrate and said release layer, wherein said barrier  
20 layer comprises a vinyl acetate-dibutyl maleate polymer dispersion.

26. The coated transfer sheet of claim 25, wherein said barrier layer is present in a dry coat amount of from 2  
25 to 20 g/m<sup>2</sup>.

27. The coated transfer sheet of claim 14, wherein said release layer is present in a dry coat amount of from 12 to 50 g/m<sup>2</sup>.

28. The coated transfer sheet of claim 21, wherein said image receiving layer is present in a dry coat amount of from 2 to 30 g/m<sup>2</sup>.

5        29. The coated transfer sheet of claim 14, wherein said substrate is a film.

30. The coated transfer sheet of claim 14, which further comprises an antistatic layer coated on said second  
10 surface of the substrate, wherein said antistatic layer comprises a quaternary ammonium salt solution.

31. The coated transfer sheet of claim 14, which further comprises an antistatic layer coated on said second  
15 surface of the substrate, wherein said antistatic layer comprises a polyether solution.

32. A coated transfer sheet comprising:  
a substrate having a first and second surface; and  
20 at least one release layer overlaying said first surface, said release layer comprising:  
a film-forming binder which melts in the range of from about 65°C to about 180°C;  
a wax dispersion; and  
25 a retention aid.

33. The coated transfer sheet of claim 32, wherein said film-forming binder is selected from the group consisting of ethylene-acrylic acid copolymers, polyolefins,  
30 and waxes.

34. The coated transfer sheet of claim 32, wherein said wax dispersion is selected from the group consisting of natural and synthetic waxes.

5        35. The coated transfer sheet of claim 32, wherein said retention aid is selected from the group consisting of polyvinyl alcohols, polymer latexes and silicates.

10       36. The coated transfer sheet of claim 32, comprising:  
a substrate having a first and second surface;  
at least one barrier layer coating overlaying the first surface of the first layer substrate, wherein said at least one barrier layer comprising acetone, 2-propanol, and polymethyl methacrylate.

15       37. The coated transfer sheet of claim 32, which further comprises at least one image receiving layer overlaying said at least one release layer, wherein said image receiving layer comprises ethylene-acrylic acid  
20 copolymers.

38. The coated transfer sheet of claim 32, wherein said barrier layer is present in a dry coat amount of from 2 to 20 g/m<sup>2</sup>; and said release layer is present in an amount of  
25 from 12 to 50 g/m<sup>2</sup>.

39. The coated transfer sheet of claim 32, wherein said substrate is a film.

30       40. The coated transfer sheet of claim 32, which further comprises an antistatic layer coated on said second

surface of the substrate, wherein said antistatic layer comprises a quaternary ammonium salt solution.

41. The coated transfer sheet of claim 32, which  
5 further comprises an antistatic layer coated on said second surface of the substrate, wherein said antistatic layer comprises a polyether solution.

42. A method of applying an image to a receptor  
10 element which comprises the steps of:

(i) imaging a coated transfer sheet, wherein said transfer sheet comprises:

a substrate having a first and second surface, and  
a release layer, wherein said release layer is  
15 coated on the first surface of the substrate;

said release layer comprising:

a polymeric composition comprising: (a) a film-forming binder, (b) an elastomeric emulsion, (c) a plasticizer, and (d) a water repellant;

20 (ii) positioning the front surface of the transfer sheet against said receptor element,

(iii) applying energy to the rear surface of the imaging system to transfer said image to said receptor element,

25 (iv) optionally allowing the substrate to cool, and

(v) removing the transfer sheet from the substrate.

43. The method of claim 42, wherein said imaging is provided by an electrostatic printer or copier.

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44. The method of claim 43, wherein said imaging is provided by offset or screen printing.

45. The method of claim 42, wherein said imaging is provided by craft-type marking.

5        46. The method of claim 43, wherein said craft-type marking is selected from the group consisting of markers, crayons, paints or pens.

10       47. The method of claim 42, wherein (a) said film-forming binder is an acrylic acid dispersion, (c) said plasticizer is polyethylene glycol, and (d) said water repellent is a polyurethane dispersion.

15       48. The method of claim 47, wherein said acrylic acid dispersion is an ethylene acrylic acid dispersion.

20       49. The method of claim 42, wherein said transfer sheet further comprises a barrier layer comprising a vinyl acetate dispersion, wherein the barrier layer is coated in-between the substrate and the release layer.

50. The method of claim 49, wherein said vinyl acetate dispersion is a vinyl acetate-dibutyl maleate dispersion.

25       51. The method of claim 42, wherein said coated transfer further comprises at least one image receiving layer overlaying said at least one release layer, said image receiving layer comprising an ethylene acrylic acid copolymer dispersion.

52. The method of claim 42, wherein said substrate further comprises an antistatic layer on said second substrate.

5 53. A method of applying an image to a receptor element which comprises the steps of:

(a) imaging a coated transfer sheet, wherein said transfer sheet comprises:

a substrate;

10 a barrier layer comprising a vinyl acetate-dibutyl maleate dispersion; and

a release layer comprising a film-forming binder which melts in the range of from about 65°C to about 180°C, a wax dispersion, and a retention aid;

15 (b) positioning the front surface of the transfer sheet against said receptor element, and

(c) applying energy to the rear surface of the imaging system to transfer said image to said receptor element

20 (d) optionally allowing the transfer sheet to cool, and

(e) removing the transfer sheet from the receptor element.

54. The method of claim 53, wherein said imaging is  
25 provided by an electrostatic printer or copier.

55. The method of claim 53, wherein said imaging is provided by offset or screen printing.

30 56. The method of claim 53, wherein said imaging is provided by craft-type marking.

57. The method of claim 56, wherein said craft-type marking is selected from the group consisting of markers, crayons, paints or pens.

5 58. A coated transfer sheet comprising:

a substrate having a first and second surface;

at least one barrier layer overlaying said first surface, wherein said barrier layer comprises a vinyl acetate-dibutyl maleate polymer dispersion, wherein said  
10 barrier layer has a Tg of about  $-7^{\circ}\text{C}$ ;

at least one release layer overlaying said at least one barrier layer, said release layer comprising:

a thermoplastic polymer which melts in a range of from about  $65^{\circ}\text{C}$  to about  $180^{\circ}\text{C}$  and has a solubility parameter less  
15 than about 19  $(\text{Mpa})^{1/2}$ ; and

at least one image receiving layer overlaying said at least one release layer, said image receiving layer comprising an ethylene acrylic acid co-polymer dispersion.

20 59. The coated transfer sheet of claim 14, further comprising

at least one silver halide light sensitive emulsion layer containing light sensitive silver halide grains.

25 60. The coated transfer sheet of claim 14, wherein said release layer has light sensitive silver halide grains dispersed therein.

30 61. The coated transfer sheet of claim 14, further comprising at least one layer of photosensitive microcapsules or at least one layer of photosensitive microcapsules and developer in the same layer or at least

one layer of photosensitive microcapsules and developer in separate layers coated on the transfer sheet.

62. The coated transfer sheet of claim 14, further comprising photosensitive microcapsules or photosensitive microcapsules and developer dispersed in the release layer.

63. The coated transfer sheet of claim 14, further comprising  
at least one thermal recording layer coated on the surface of the transfer sheet, wherein said at least one thermal recording layer contains heat-responsive microcapsules capable of creating an image.

64. The coated transfer sheet of claim 14, wherein said release layer further comprises heat-responsive microcapsules capable of creating an image.

65. A coated transfer sheet comprising:  
a substrate having a first and second surface;  
at least one barrier layer overlaying said first surface, wherein said barrier layer comprises a vinyl acetate-dibutyl maleate polymer dispersion;  
at least one release layer overlaying said at least one barrier layer, said release layer comprising:  
a thermoplastic polymer that melts in the range of from about 65°C to about 180°C, and has a solubility parameter of less than 19 (Mpa)<sup>1/2</sup>.

66. The coated transfer sheet of claim 21, wherein said image receiving layer further comprises an ethylene vinyl acetate copolymer powder.

67. The coated transfer sheet of claim 21, wherein said image receiving layer further comprises an oxidized polyethylene homopolymer.

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68. The coated transfer sheet of claim 51, wherein said image receiving layer further comprises an ethylene vinyl acetate copolymer powder.

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69. The coated transfer sheet of claim 21, wherein said image receiving layer further comprises an oxidized polyethylene homopolymer.